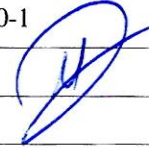


Work Order ID 162216

Tuesday, May 30, 2017 9:30:32 AM

162216

Page 1

Item ID: D119-646-041 REPAIR **Accept** ***N9000040100*** **Setup Start *NS1***
Revision ID: **Stop *NS2***
Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH
Start Date: 5/30/2017 **Start Qty:** 1.00 ***1*** **Cust Item ID:**
Required Date: 5/31/2017 **Req'd Qty:** 1.00 ***1*** **Customer:** CAGUS02
Reference: RMA RA112540-1
Approvals: **Process Plan:**  **Date:** **Tooling:** **Date:** **Run Start *NR1***
QC: **Date:** MAY 30 2017 **SPC (Y/N):** **Date:** **Stop *NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
110	Receive & Inspect for Damage & Mat'l Certs	0.00							
110									
Packaging	Memo	0.00							
Packaging									
120	QC5- Inspect part completeness to step on W/O	0.00							
120									
QC	Memo	0.00							
Quality Control	-Inspect RA112540-1								
	-Customer supplied Skid D119-646-041 B158273.								
130		0.00							
130									
Skidtubes	Memo	0.00							
Skidtubes	-Re-work as per DSI9734.								

B162216

IX-2017-5-30

D 17-5-30

D 17-5-30

CH6004

DAS
21
9-89DAS
9
9-89

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval	
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐				
		OTHER : ☐							

Work Order ID 162216

Tuesday, May 30, 2017 9:30:32 AM

162216

Page 2

Item ID: D119-646-041 REPAIR Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH
Start Date: 5/30/2017 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 5/31/2017 Req'd Qty: 1.00 ***1*** Customer: CAGUS02
Reference: RMA RA112540-1

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	QC5- Inspect part completeness to step on W/O	0.00							
140									
QC	Memo	0.00							
Quality Control									17-05-31
150		0.00							
150									
HandFinish	Memo	0.00							
Hand Finishing									17-05-31
160	QC5- Inspect part completeness to step on W/O	0.00							
160									
QC	Memo	0.00							
Quality Control									DAS 38 9-89 MAY 31 2017

DART aerospace		1270 ABERDEEN ST HAWKESBURY ON CANADA K6A 1K7 TEL 1-613-632-5200 www.dartaero.com	
PATENT US #5735484 / CA #2222184 / EURO #0828655			
P/N	D119-646-041	CHG	CHG004
DESC	Replacement Skidtube STD	STC	SR02024SE
LOT	B158273	STC	
MODEL	Agusta A119/AW119MKII	STC	
TC APPROVAL # 09-89		MADE IN CANADA	
		D2729-4	

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐								
Misidentified ☐	Past Due ☐	OTHER : ☐							

Work Order ID 162216

Tuesday, May 30, 2017 9:30:32 AM

162216

Page 3

Item ID: D119-646-041 REPAIR **Accept** ***N900040100*** **Setup Start *NS1***
Revision ID: **Stop *NS2***
Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH
Start Date: 5/30/2017 **Start Qty:** 1.00 ***1*** **Cust Item ID:**
Required Date: 5/31/2017 **Req'd Qty:** 1.00 ***1*** **Customer:** CAGUS02
Reference: RMA RA112540-1

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start *NR1***
QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____ **Stop *NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
170	Identify as per dwg & Stock Location: _____	0.00							
170									
Packaging	Memo	0.00							
Packaging	-I.D. with new batch at CHG004. Return to customer.								
180	QC21- Final Inspection - Work Order Release	0.00							
180									
QC	Memo	0.00							
Quality Control									

DAS
27
9-89

MAY 31 2017

DAS
21
9-89

MAY 31 2017



MAY 31 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐				
OTHER : ☐									

Picklist Print

Page 1

Tuesday, May 30, 2017 9:30:39 AM

Work Order ID: 162216

162216

Parent Item: D119-646-041 REPAIR

D119-646-041 REPAIR

Parent Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 5/30/2017

Required Date: 5/31/2017

Start Qty: 1.00

Required Qty: 1.00

Comments:

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D119-646-041 REPAIR		Manufactured	No				Each	0.0000					
D119-646-041 REPAIR													
AW119 Replacement Skidtube with Wearpads - Fits LH or RH													

158273

**

1
N

MAY 30 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐								
Misidentified ☐	Past Due ☐	OTHER : _____							

Inspection Sheet Complete **RA112540-1**

Customer QA Ref #

0

Part Number	Batch / Serial #	Quantity	Part Complete	Rev/CHG Current	New Paperwork	New Labels	Disposition	Work order #	Work order instructions
D119-646-041 REPAIR	B158273	1	☐ Yes	☐ Yes	☐ Yes	☒ Yes	CUSTOMER SUPPLIED	162216	Customer supplied Skid D119-646-041 B158273. Re-work as per DSI9734. I.D. with new batch at CHG004. Return to customer.
D119-646-041 REPAIR	B154505	1	☐ Yes	☐ Yes	☐ Yes	☒ Yes	CUSTOMER SUPPLIED	162217	Customer supplied Skid D119-646-041 B154505. Re-work as per DSI9734. I.D. with new batch at CHG004. Return to customer.
0		0	☐ Yes	☐ Yes	☐ Yes	☐ Yes			
0		0	☐ Yes	☐ Yes	☐ Yes	☐ Yes			
0		0	☐ Yes	☐ Yes	☐ Yes	☐ Yes			
0		0	☐ Yes	☐ Yes	☐ Yes	☐ Yes			

QC Approval: P.D. _____

Date: 30-May-17 _____

DART SERVICE INSTRUCTION

**TO AMEND INSTALLATION INSTRUCTIONS IIN-D119-646 REV. D
AND INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA-D119-646 REV. 3**
REF FAA STC: SR02024SE
REF EASA STC: 10040294

1.0 PURPOSE:

The purpose of this Dart Service Instructions is to add D119-646-313/-314 Skidtube Protector Kit to make the D119-646-011/-012/-041/-111/-112/-141/-211/-212/-241 Skidtube Kits compatible with the 109-0812-68-105 Hoist Structural Provision Kit and the 109-0816-18-301 Rappelling Kit. The D119-646-313 Skidtube Protector, LH replaces the 109-B710-05-201 kit and the D119-646-314 Skidtube Protector, RH replaces the 109-B710-05-202 kit.

B 2.0 D119-646-011/-012/-041/-111/-112/-141 MODIFICATION:

The following instructions are for modifying the D119-646-011/-012/-041/-111/-112/-141 Skidtube at CHG 004 and prior, to allow for D119-646-313/-314 Skidtube Protector Kit installation:

- 2.1 Remove D3492-045 Plug Assemblies from two locations on each side of the skidtube as shown in Figure 3.
- 2.2 Position D5376-1 drilling jig tool with the arrow pointing fwd as shown in Figure 3. Use 2x AN3-45A bolts to hold the jig in place. Transfer drill 4x $\varnothing 0.129"$ (#30 drill) holes from D5376-1 drilling jig to skidtube ridge as shown in Figure 3. **Caution:** Drill perpendicular to the skidtube ridge.
- 2.3 Remove drilling jig. Using a 5/16" drill, open up the pilot holes and drill through the skidtube ridge and center web inside of the skidtube. **Caution:** Drill perpendicular to the skidtube ridge.
- 2.4 Countersink 4x 5/16" holes to $\varnothing 0.348"$ (8.84mm) x 100° as shown in Figure 3 and deburr.
- 2.5 Repeat steps 2.2 to 2.4 for the opposite side of the skidtube.
- 2.6 Vacuum the debris from inside of the skidtube. Touch up affected area using (Alodine 1200 or 1201) per MIL-DTL-5541.
- 2.7 Install 8x D5374-3 Bushings in the new holes. Seal bushings with Sikaflex-241/-291 or Proseal 890 or MIL-S-8802 Class 'B2' sealant as shown in Section C-C.

D119-646-011/-012/-041/-111/-112/-141 Skidtube at CHG 005 and subsequent, do not require modification. Discard D5376-1 Drilling jig and D5374-3 Bushings.

B 3.0 D119-646-211/-212/-241 MODIFICATION:

The following instructions are for modifying the D119-646-211/-212 Skidtube at CHG 005 and prior, and D119-646-241 at CHG 004 and prior, to allow for D119-646-313/-314 Skidtube Protector Kit installation:

- 3.1 Temporarily remove D3849-043 Training Wearplate from aft end of the skidtube per ICA-D119-646 Section 32.
- 3.2 Position D5376-1 drilling jig tool with the arrow pointing fwd as shown in Figure 3. Use 2x AN3-45A bolts to hold the jig in place. Transfer drill 4x $\varnothing 0.129"$ (#30 drill) holes from D5376-1 drilling jig to skidtube ridge as shown in Figure 3. **Caution:** Drill perpendicular to the skidtube ridge.
- 3.3 Remove drilling jig. Using a 5/16" drill, open up the pilot holes and drill through the skidtube ridge and center web inside of the skidtube. **Caution:** Drill perpendicular to the skidtube ridge.
- 3.4 Countersink 4x 5/16" holes to $\varnothing 0.348"$ (8.84mm) x 100° as shown in Figure 3 and deburr.
- 3.5 Repeat steps 3.2 to 3.4 for the opposite side of the skidtube.
- 3.6 Vacuum the debris from inside of the skidtube. Touch up affected area using (Alodine 1200 or 1201) per MIL-DTL-5541.
- 3.7 Install 8x D5374-3 Bushings in the new holes. Seal bushings with Sikaflex-241/-291 or Proseal 890 or MIL-S-8802 Class 'B2' sealant as shown in Section C-C.

D119-646-211/-212 Skidtube at CHG 006 and subsequent, and D119-646-241 Skidtube at CHG 005 and subsequent, do not require modification. Discard D5376-1 Drilling jig and D5374-3 Bushings.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 1622164

MAY 30 2017

APPROVED

B	REVISED DSI TO INCLUDE INSTALLATION INSTRUCTIONS FOR SKIDTUBE ASSY D119-646-011/-012/-111/-112/-041/-141/-241 CHG 005 & SUBSEQUENT AND SKIDTUBE ASSY D119-646-211/-212 CHG 006 & SUBSEQUENT. ADDED NAS1149D0316J WASHERS TO BOM.	WK	17.02.16
A	NEW ISSUE	RF	15.12.10
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE USA, INC. EUGENE, OR	
DRAWN	WK		
CHECKED	VS	DRAWING NO. REV. B	
MFG. APPR.	N/A	DSI 9734 SHEET 1 OF 10	
APPROVED	WS	TITLE SCALE	
DE APPR.	DS	SKIDTUBE PROTECTOR KIT NTS	
DATE	17.02.16	COPYRIGHT © 2015 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

B 4.0 INSTALLATION OF D119-646-313/-314 ONTO D119-646-011/-012/-041/-111/-112/-141:

- 4.1 Remove all D3492-045 Plug Assemblies from skidtube fwd of the ground handling wheel lugs.
- 4.2 For installation of the D119-646-313/-314 Skidtube Protector Kit onto the D119-646-011/-012/-041/-111/-112/-141 Skidtube at CHG 005 and subsequent, Install NAS1149D0316J and NAS1149D0332J washers as shown in Detail G, Figure 6.
- 4.3 If the D119-646-314 Skidtube Protector Kit is required for hoisting operations on the RH side of the aircraft install D5372-1 Plug using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 4 Detail E. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 4.4 If the D119-646-313 Skidtube Protector Kit is required for hoisting operations on the LH side of the aircraft install D5372-1 Plug using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 4 Detail E. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 4.5 If the D119-646-314 Skidtube Protector Kit is required for rappelling operations on the RH side of the aircraft install D5371-2 Hook using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 5 Detail F. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 4.6 If the D119-646-313 Skidtube Protector Kit is required for rappelling operations on the LH side of the aircraft install D5371-1 Hook using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 5 Detail F. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 4.7 Install D5369-2 Cable Guard on the RH side of the aircraft using 6x AN3-47A bolts, 6x D5374-1 Bushings, 6x D4506-3 Washers, 12x NAS1149D0332J washers, 6x MS21042L3 nuts as shown in Figure 1 Section A-A. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 4.8 Install D5369-1 Cable Guard on the LH side of the aircraft using 6x AN3-47A bolts, 6x D5374-1 Bushings, 6x D4506-3 Washers, 12x NAS1149D0332J washers, 6x MS21042L3 nuts as shown in Figure 1 Section A-A. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 4.9 Update aircraft log book to indicate installation of the D119-646-313/-314 kit and adjust weight and balance record for the aircraft with weight and balance data provided in Section 7.0 of this document.

NOTE: Additional NAS1149D0332J washers may be installed under the nuts to ensure 1.5 - 4 threads in safety on the bolts. Although not generally necessary, it is also acceptable to replace the AN3 bolts provided with longer or shorter AN3 bolts, if required.

APPROVED

DESIGN	RF	DART AEROSPACE USA, INC.	
DRAWN	WK	EUGENE, OR	
CHECKED	VS	DRAWING NO.	REV. B
MFG. APPR.	N/A	DSI 9734	SHEET 2 OF 10
APPROVED	VS	TITLE	SCALE
DE APPR.	DS	SKIDTUBE PROTECTOR KIT	NTS
DATE	17.02.16	COPYRIGHT © 2015 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

B 5.0 INSTALLATION OF D119-646-313/-314 ONTO D119-646-211/-212/-241:

- 5.1 Remove and discard all hardware attaching the training wearplates in front of the skidtube ground handling lugs.
- 5.2 For installation of the D119-646-313/-314 Skidtube Protector Kit onto the D119-646-211/-212 Skidtube at CHG 006 and subsequent, and D119-646-241 Skidtube at CHG 005 and subsequent, remove all D3492-045 Plug Assemblies from skidtube fwd of the ground handling wheel lugs & install NAS1149D0316J and NAS1149D0332J washers as shown in Detail G, Figure 6.
- 5.3 If the D119-646-314 Skidtube Protector Kit is required for hoisting operations on the RH side of the aircraft install D5372-1 Plug using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 4 Detail E. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 5.4 If the D119-646-313 Skidtube Protector Kit is required for hoisting operations on the LH side of the aircraft install D5372-1 Plug using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 4 Detail E. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 5.5 If the D119-646-314 Skidtube Protector Kit is required for rappelling operations on the RH side of the aircraft install D5371-2 Hook using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 5 Detail F. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 5.6 If the D119-646-313 Skidtube Protector Kit is required for rappelling operation on the LH side of the aircraft install D5371-1 Hook using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 5 Detail F. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 5.7 Reinstall the D3849-043 Training Wearplate on the aft end of the skidtube per ICA-D119-646 Section 32, except for hardware under D5369-1/-2 Cable Guard.
- 5.8 Install D5369-2 Cable Guard on the RH side of the aircraft using 6x AN3-50A bolts, 6x D5374-1 Bushings, 6x D3904-1 Washers, 6x MS21042L3 nuts as shown in Figure 2 Section B-B. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 5.9 Install D5369-1 Cable Guard on the LH side of the aircraft using 6x AN3-50A bolts, 6x D5374-1 Bushings, 6x D3904-1 Washers, 6x MS21042L3 nuts as shown in Figure 2 Section B-B. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 5.10 Update aircraft log book to indicate installation of the D119-646-313/-314 kit and adjust weight and balance record for the aircraft with weight and balance data provided in Section 7.0 of this document.

NOTE: Additional NAS1149D0332J washers may be installed under the nuts to ensure 1.5 - 4 threads in safety on the bolts. Although not generally necessary, it is also acceptable to replace the AN3 bolts provided with longer or shorter AN3 bolts, if required.

APPROVED

DESIGN	RF	DART AEROSPACE USA, INC. EUGENE, OR	
DRAWN	WK		
CHECKED	VS	DRAWING NO.	REV. B
MFG. APPR.	N/A	DSI 9734	SHEET 3 OF 10
APPROVED	VS	TITLE	SCALE
DE APPR.	DS	SKIDTUBE PROTECTOR KIT	NTS
DATE	17.02.16	COPYRIGHT © 2015 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

6.0 PARTS LIST:

Qty. -313	Qty. -314	PART NUMBER	DESCRIPTION
X		D119-646-313	SKIDTUBE PROTECTOR, LH
	X	D119-646-314	SKIDTUBE PROTECTOR, RH
6	6	D3904-1	WASHER
6	6	D4506-3	WASHER
1		D5369-1	CABLE GUARD, LH
	1	D5369-2	CABLE GUARD, RH
1		D5371-1	HOOK, LH
	1	D5371-2	HOOK, RH
1	1	D5372-1	PLUG
6	6	D5374-1	BUSHING
8	8	D5374-3	BUSHING
1	1	D5376-1	DRILLING JIG
4	4	AN3-45A	BOLT
6	6	AN3-47A	BOLT
6	6	AN3-50A	BOLT
18	18	NAS1149D0332J	WASHER
4	4	NAS1149D0316J	WASHER
10	10	MS21042L3	NUT

B

7.0 WEIGHT AND BALANCE

The following weight and balance changes are applicable:

Installation	Weight	LONGITUDINAL		LATERAL	
		Arm	Moment	Arm	Moment
D119-646-313 SKIDTUBE PROTECTOR, LH	4.3 lb 1.95 kg	108.1 in 4.3 m	465 in-lb 8.4 kg-m	-43.4 in 1.7 m	-187 in-lb -3.3 kg-m
D119-646-314 SKIDTUBE PROTECTOR, RH	4.3 lb 1.95 kg	108.1 in 4.30 m	465 in-lb 8.4 kg-m	43.4 in 1.7 m	187 in-lb 3.3 kg-m

APPROVED

DESIGN	RF	DART AEROSPACE USA, INC. EUGENE, OR	
DRAWN	WK		
CHECKED	VS	DRAWING NO. DSI 9734	REV. B
MFG. APPR.	N/A		SHEET 4 OF 10
APPROVED	VS	TITLE	SCALE
DE APPR.	DS	SKIDTUBE PROTECTOR KIT	NTS
DATE	17.02.16	COPYRIGHT © 2015 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

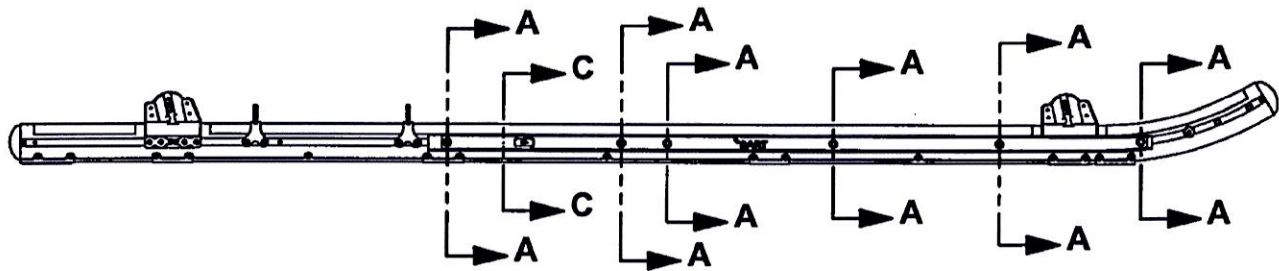


FIGURE 1: D119-646-314 SKIDTUBE PROTECTOR KIT, RH (SHOWN)
(D119-646-313 SKIDTUBE PROTECTOR, LH (OPPOSITE))
(SHOWN INSTALLED ON D119-646-011/-012/-111/-112 SKIDTUBES)

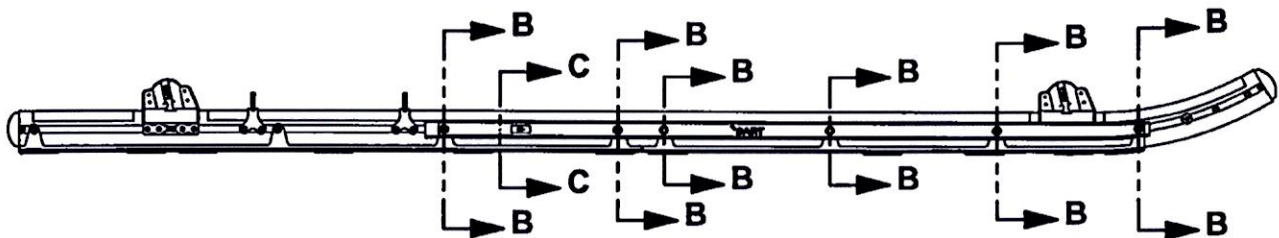


FIGURE 2: D119-646-314 SKIDTUBE PROTECTOR KIT, RH (SHOWN)
(D119-646-313 SKIDTUBE PROTECTOR, LH (OPPOSITE))
(SHOWN INSTALLED ON D119-646-211/-212 SKIDTUBES)

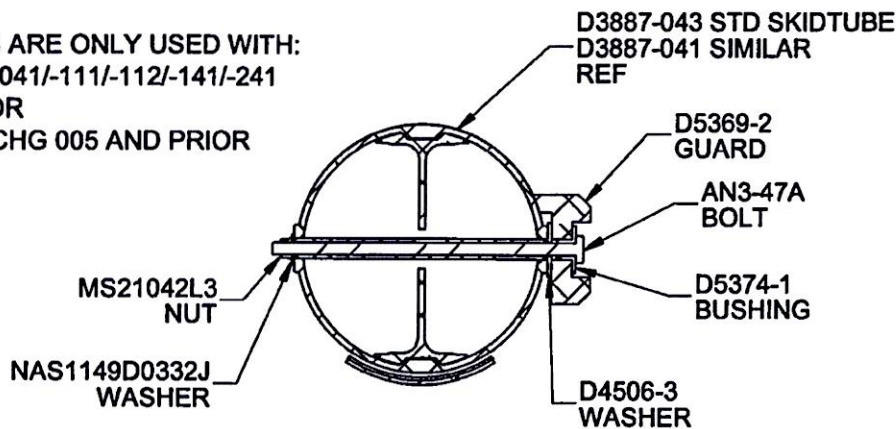
APPROVED

DESIGN	RF	DART AEROSPACE USA, INC.	
DRAWN	WK	EUGENE, OR	
CHECKED	VS	DRAWING NO.	REV. B
MFG. APPR.	N/A	DSI 9734	SHEET 5 OF 10
APPROVED	VS	TITLE	SCALE
DE APPR.	DS	SKIDTUBE PROTECTOR KIT	NTS
DATE	17.02.16	COPYRIGHT © 2015 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

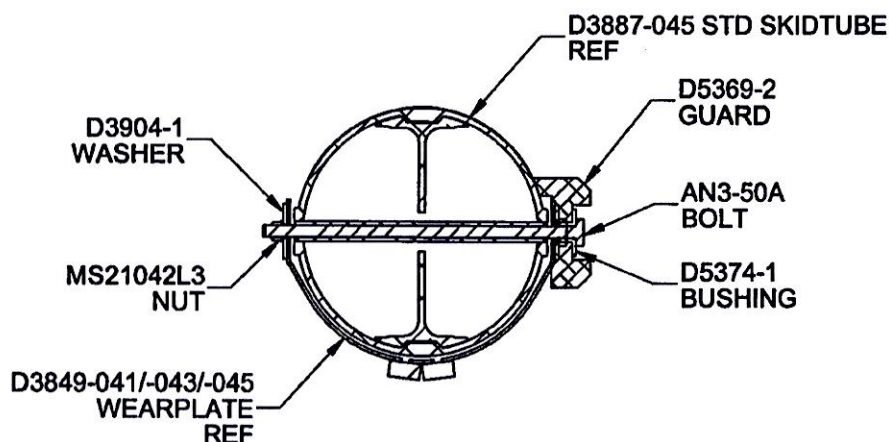
NOTES:



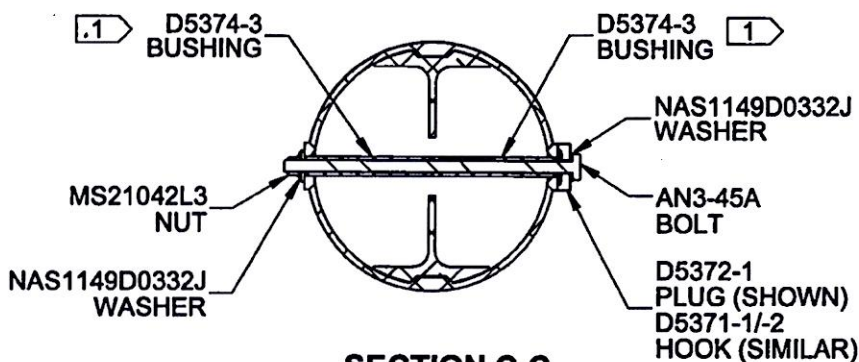
- 1) D5374-3 BUSHINGS ARE ONLY USED WITH:
 - D119-646-011/-012/-041/-111/-112/-141/-241
 CHG 004 AND PRIOR
 - D119-646-211/-212 CHG 005 AND PRIOR



SECTION A-A



SECTION B-B



SECTION C-C

(D5369-2 NOT SHOWN FOR CLARITY)

APPROVED

DESIGN	RF
DRAWN	WK
CHECKED	VS
MFG. APPR.	N/A
APPROVED	HS
DE APPR.	DS
DATE	17.02.16

DART AEROSPACE USA, INC.

EUGENE, OR

DRAWING NO.
DSI 9734

REV. B

SHEET 6 OF 10

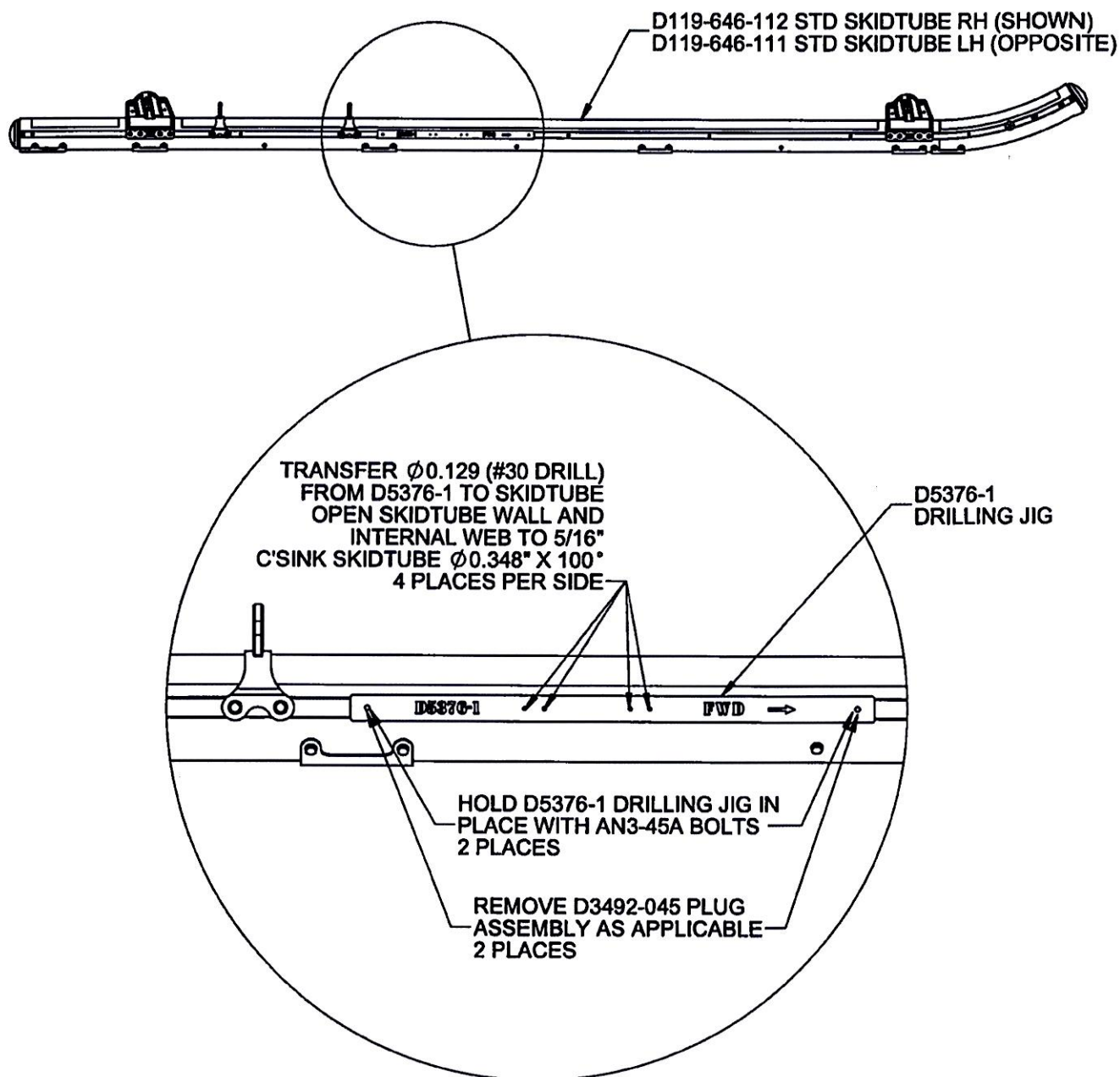
TITLE
SKIDTUBE PROTECTOR KIT

SCALE

NTS

COPYRIGHT © 2015 BY DART AEROSPACE USA, INC.

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.



DETAIL D

FIGURE 3: USING D5376-1 DRILLING JIG

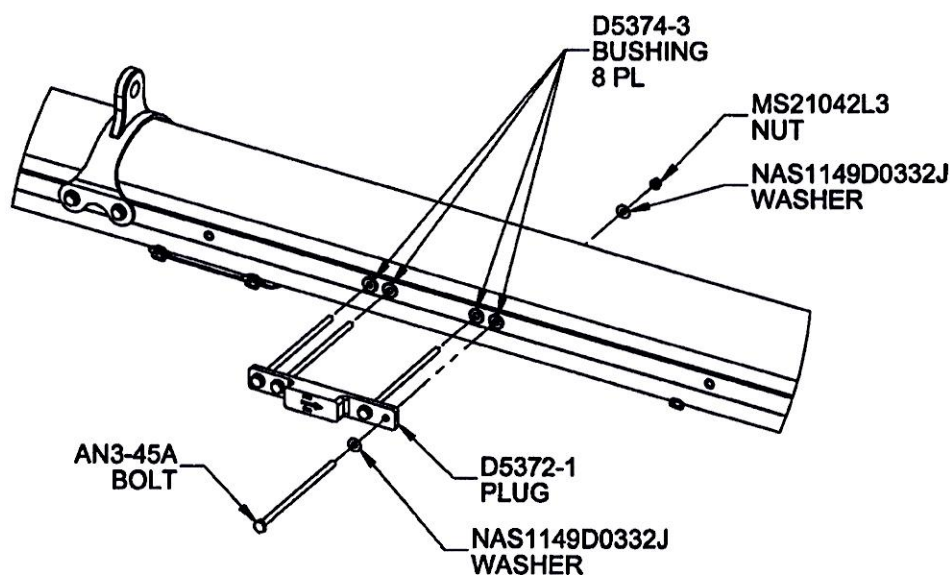
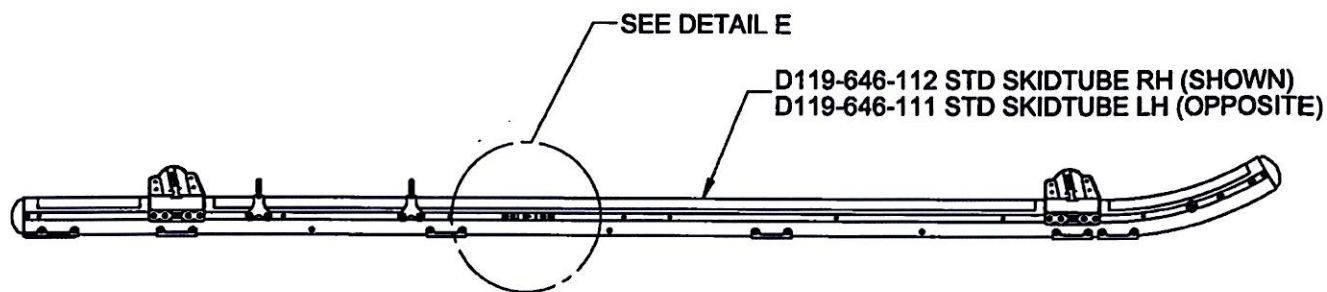


D5376-1 DRILLING JIG IS ONLY USED WITH SKIDTUBE ASSEMBLIES:

- D119-646-011/-012/-041/-111/-112/-141/-241 CHG 004 AND PRIOR
- D119-646-211/-212 CHG 005 AND PRIOR

APPROVED

DESIGN	RF	DART AEROSPACE USA, INC. EUGENE, OR	
DRAWN	WK		
CHECKED	VS	DRAWING NO.	REV. B
MFG. APPR.	N/A	DSI 9734	SHEET 7 OF 10
APPROVED	VS	TITLE	SCALE
DE APPR.	DS	SKIDTUBE PROTECTOR KIT	NTS
DATE	17.02.16	COPYRIGHT © 2015 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	



DETAIL E

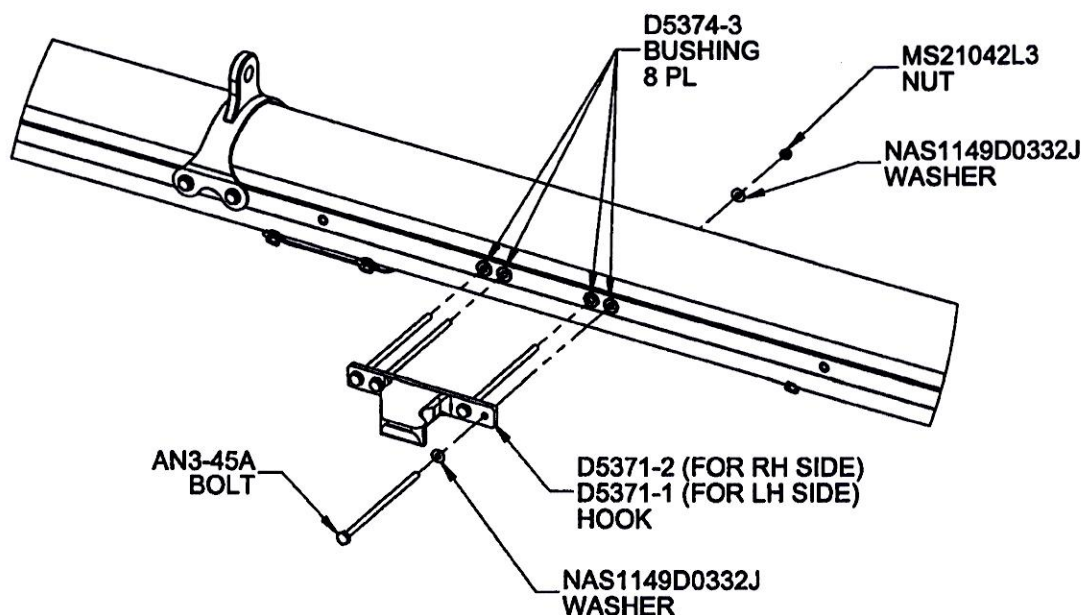
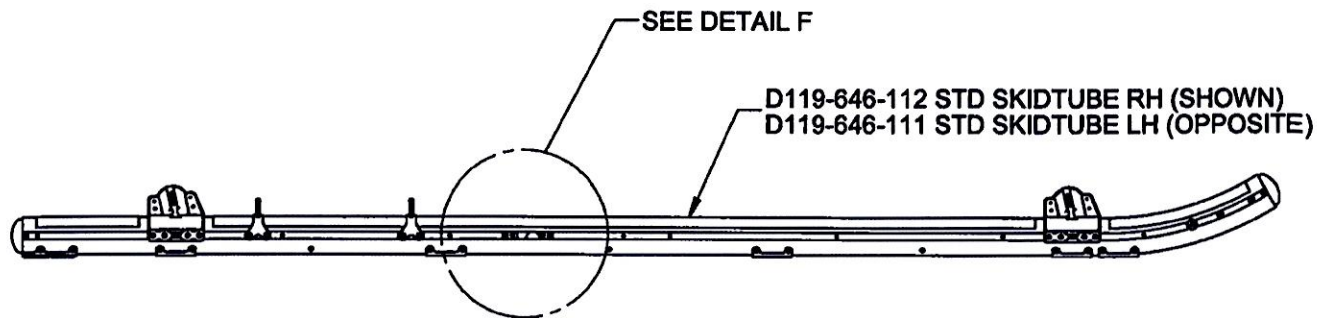
FIGURE 4: D5372-1 PLUG INSTALLATION



D5374-3 BUSHINGS ARE ONLY USED WITH SKIDTUBE ASSEMBLIES:
 - D119-646-011/-012/-041/-111/-112/-141/-241 CHG 004 AND PRIOR
 - D119-646-211/-212 CHG 005 AND PRIOR

APPROVED

DESIGN	RF	DART AEROSPACE USA, INC. EUGENE, OR	
DRAWN	WK		
CHECKED	VS	DRAWING NO.	REV. B
MFG. APPR.	N/A	DSI 9734	SHEET 8 OF 10
APPROVED	VS	TITLE	SCALE
DE APPR.	DS	SKIDTUBE PROTECTOR KIT	NTS
DATE	17.02.16	COPYRIGHT © 2015 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	



DETAIL F

FIGURE 5: D5371-1/-2 HOOK INSTALLATION



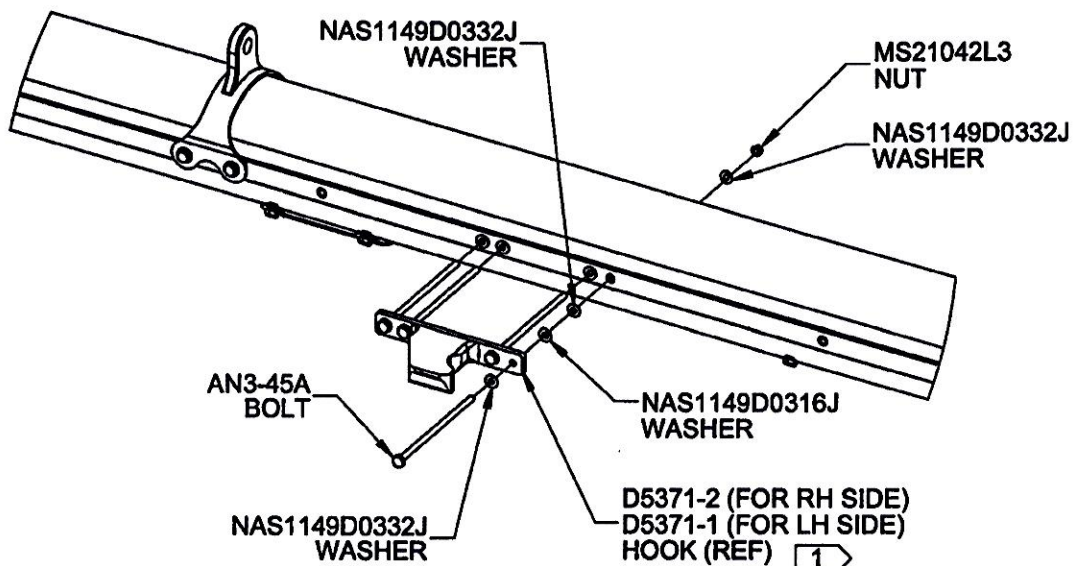
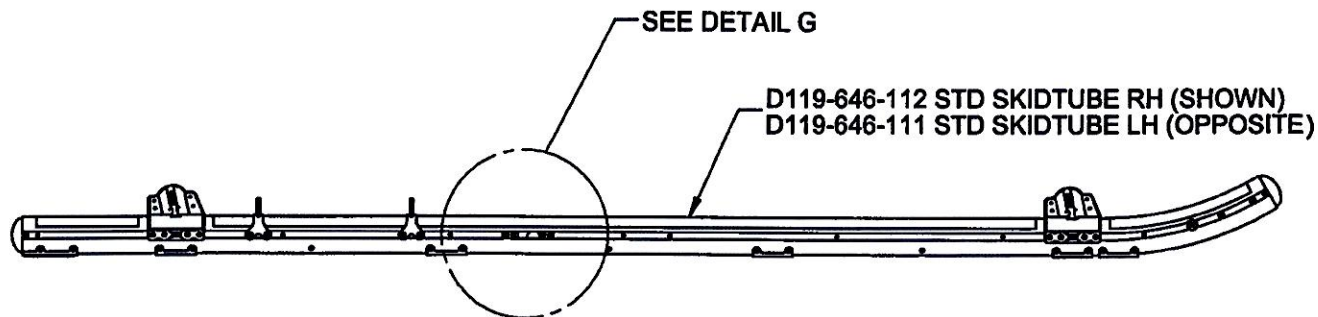
D5374-3 BUSHINGS ARE ONLY USED WITH SKIDTUBE ASSEMBLIES:
 - D119-646-011/-012/-041/-111/-112/-141/-241 CHG 004 AND PRIOR
 - D119-646-211/-212 CHG 005 AND PRIOR

APPROVED

DESIGN	RF	DART AEROSPACE USA, INC.	
DRAWN	WK	EUGENE, OR	
CHECKED	VS	DRAWING NO.	REV. B
MFG. APPR.	N/A	DSI 9734	SHEET 9 OF 10
APPROVED	VS	TITLE	SCALE
DE APPR.	DS	SKIDTUBE PROTECTOR KIT	NTS
DATE	17.02.16	COPYRIGHT © 2015 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

NOTES:

1) D5371-1/2 HOOK ASSEMBLY SHOWN, D5372-1 PLUG ASSEMBLY SIMILAR.



DETAIL G



FIGURE 6: HOOK & PLUG INSTALLATION

NAS1149D0316J and NAS1149D0332J WASHER BUILDUP IS ONLY USED WITH SKIDTUBE ASSEMBLIES:

- D119-646-011/-012/-041/-111/-112/-141/-241 CHG 005 AND SUBSEQUENT
- D119-646-211/-212 CHG 006 AND SUBSEQUENT

APPROVED

DESIGN	RF	DART AEROSPACE USA, INC. EUGENE, OR	
DRAWN	WK		
CHECKED	VS	DRAWING NO.	REV. B
MFG. APPR.	N/A	DSI 9734	SHEET 10 OF 10
APPROVED	VS	TITLE	SCALE
DE APPR.	DS	SKIDTUBE PROTECTOR KIT	NTS
DATE	17.02.16	COPYRIGHT © 2015 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

AgustaWestland Philadelphia Corporation		BOUGHT-OUT MATERIAL		05/17/2017	QJ 200001221283		1
ORIGINATOR DEPT. US01-QUA-QC5							
PN D119-646-041		PRODUCT Equipment included in doc. STC			GRADE NC		
PN DESCRIPTION		REPLACEMENT STD SKIDTUBE W WEARPLATES					UNIT N
P.O. / ITEM			INCOMING REF. 101094178		ASSEMBLY W.O.		
SUPPLIER		21000667 DART AEROSPACE LTD			TOTAL HOURS		
MANUFACT.		21000667 DART AEROSPACE LTD			ALR HOURS		
BATCH Q.TY		1.000	N.C. Q.TY		1.000	HELIC. S/N IN STOCK	
N.C. DETECTED AT DEPT. US01-PRO-AW119 IN POST-INSPECTION							
CLASS 3-Medium				ORIGINATOR PAUL BOUCHARD			
MISSED NC NO		REWORK BY W.O.		COORDINATOR			
CONCES. N.		CONCESSION Q.TY		FOCAL POINT			
DEFECT ORIGINATOR DART AEROSPACE LTD							
CLOSED ON				CLOSED BY			
DEFECT 0001 MO03 Incorrect Installation hoist provisions not installed * 05/17/2017 17:49:53 PAUL BOUCHARD (C9548) * hoist provisions not installed on skid tube P/N D119-646-041 S/N B154505							
CONTAINMENT ACTIONS							
* 0015 <i>Manage Partner/customer/Currier for Anom</i> PLANNED EXECUTION WITHIN				OFFICE DEPT. US01 MRB Materials Review Board CLOSED RESPONSIBLE			
* 0007 <i>Material storage Required</i> PLANNED EXECUTION WITHIN				OFFICE DEPT. US01-MRB-PC CLOSED RESPONSIBLE			

Mod A12-02

REMOVAL OR DISTRIBUTION OF THIS TAG BY A
PERSON NOT AUTHORIZED IS PROHIBITED

 AgustaWestland A Finmeccanica Company		1. P/N D119-646-041		NOTE FOR PURCHASED PARTS	
2. U.M. N	QTY 1	3. DESCRIPTION REPLACEMENT STD SKIDTUBE W WEARPL			
4. LOT #		5. S/N		11. DOCUMENTATION ☐ NNC N" ☐ MDR N" ☐ NI N" ☐ REPORT N" ☐ OTHER	
6. TOTAL TIME 00.00		7. O/H TIME	8. PRESERVATION DATE	12. NON-CONFORMITY/NON USEABLE MATERIAL ☐ Non Conformity to Order NCF open ☐ Non Conformity to Drawing NCP/MDR open ☐ Uninstallable/Not Functionable NI open ☐ Lack of Acceptability Limits for Expressed Technical Requisite ☐ Result Not Assured/Negative of Technical Qualification ☐ Declined Qualification ☐ Anomaly in Service/Damage	
9. PO#		10. W/O#		13. INSPECTOR'S STAMP	
		Insp. Lot 10109417/1 50000544584		DATE MAY 17 2017 	

Work Order ID 162216

Tuesday, May 30, 2017 9:30:32 AM

162216

Page 1

Item ID: D119-646-041 REPAIR

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

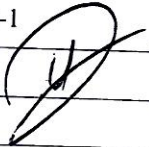
Start Date: 5/30/2017 Start Qty: 1.00 ***1***Required Date: 5/31/2017 Req'd Qty: 1.00 ***1***

Cust Item ID:

Customer: CAGUS02

Reference: RMA RA112540-1

Approvals:

Process Plan: 

Date: _____

Tooling: _____

Date: _____

Run Start ***NR1***

QC: _____

Date: **MAY 30 2017**

SPC (Y/N): _____

Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								

110

Receive & Inspect for Damage & Mat'l Certs

0.00

110

Packaging

Memo

0.00

Packaging

IX-5017-5-30

120

QC5- Inspect part completeness to step on W/O

0.00

120

QC

Memo

0.00

Quality Control

-Inspect RA112540-1

-Customer supplied Skid D119-646-041 B158273.

① 11-05-30

DAS

9

9-08

130

130

Skidtubes

Memo

0.00

Skidtubes

-Re-work as per DS19734.

① 11-05-30

United States of America
Department of Transportation - Federal Aviation Administration
Supplemental Type Certificate

Number SR02024SE

This certificate, issued to

**Dart Aerospace USA, Inc.
190 S. Danebo Ave.
Eugene, OR 97402**

certifies that the change in the type design for the following product with the limitations and conditions therefore as specified hereon meets the airworthiness requirements of Part 27 of the Federal Aviation Regulations.

Original Product—Type Certificate Number: H7EU
Make: Agusta S.p.A.
Model: A119 and AW119 MKII

Description of the Type Design Change: Fabrication of DART D119-646 Replacement Skidtube Installation in accordance with DART Aerospace USA, Inc. Master Document List (MDL), Document Number MDL-D119-646, Revision B, dated June 30, 2009, or later Federal Aviation Administration (FAA) approved revision; and installation of this system in accordance with Installation Instructions, DART Aerospace USA, Inc. Document Number IIN-D119-646, Revision B, dated June 29, 2009, or later FAA-approved revision. This modification must be maintained in accordance with Instructions for Continued Airworthiness (ICA), DART Aerospace USA, Inc. Document Number ICA-D119-646, Revision 1, issued June 29, 2009, or later FAA-accepted revision.

Limitations and Conditions: Approval of this change in type design applies to the above model rotorcraft only. This approval should not be extended to other rotorcraft of this model on which previously approved modifications are incorporated, unless it is determined by the installer that the relationship between this change and any of those other previously approved modifications, including changes in type design, will introduce no adverse effect upon the airworthiness of that rotorcraft. A copy of this certificate and the ICA must be maintained as part of the permanent records for the modified rotorcraft.

If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: May 11, 2009

Date reissued: October 28, 2015

Date of issuance: August 11, 2009

Date amended:



By direction of the Administrator

[Signature]
(Signature)

[Title]
Manager, Seattle Aircraft Certification Office
(Title)

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

This certificate may be transferred in accordance with FAR 21.47.